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S/120/60/000/02/004/052

E032/E314

An Injector for Electron Accelerators

The lower drawing on the right of Figure 1 shows the construction of the anode. The cathode and the control electrode 1 are spot-welded to the molybdenum leads 3, which are fixed to the central portion 4 of the double-walled glass tube, 5. The electron-optical characteristics of the injector are shown in Figure 2. The beam is well focused and is almost entirely included within an interval of $\pm 2^\circ$. The potential on the control electrode can be used to vary the angular divergence of the beam up to $15-20^\circ$. This is achieved by a 10-15% change in the injection voltage. The injector will withstand 75 kV applied in 6 μ s pulses. The tungsten-sheet cathode (0.1 x 1 x 25 mm³) gives emission currents of about 2 A/cm² and consumes about 50 W at 15 A heating current. The lifetime is greater than 100 hours. There are 2 figures and 2 Soviet references. 4

SUBMITTED: March 6, 1959
Card 2/2

83169
S/056/60/039/002/006/044
B006/B056

21.2200
AUTHORS:

Samoylov, I. M., Sokolov, A. A.

TITLE:

The Problem of the Azimuthal Instability of Circulating
Currents

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960.
Vol. 39, No. 2 (8), pp. 257-259

TEXT: An investigation of the azimuthal effects of the space charge in synchrotrons showed that, under certain conditions, these effects may exert considerable influence on particle motion. As A. A. Kolomenskiy and A. N. Lebedev (Ref. 2) have shown, an influence of these effects may be found also in other systems in consequence of the instability of the azimuthal homogeneous beam distribution. The results published here were obtained in investigations of electron capture in a betatron-type device (the parameters of which are given). Already in 1955, L. N. Bondarenko and A. A. Naumov had discovered that in measurements carried out with probes a high-frequency pulse occurs on the latter at the instant of injection.

Card 1/3

83169

The Problem of the Azimuthal Instability
of Circulating Currents

S/056/60/039/002/006/044
B006/B056

The rules of this pulse excitation remained unexplained. The authors of the present paper obtained the following results: 1) In the case of injected square pulses of 50 cps, $\sim 10^{-5}$ sec duration, and $U = 10 - 50$ kv, a maximum intensity and stability of the high-frequency signal was observed at values of r_i which corresponded to about the maximum of the circulating current ($a/r_0 \approx 0.1$) ($r_i = r_0 + a$, r_0 - injection radius). 2) The high-frequency oscillations were observed in the entire voltage range of 10 - 50 kv, and in the injection-current range $J = 5 - 500$ ma. At $U = 20$ kv, high-frequency oscillations occurred at $J > 2 - 5$ ma. 3) The oscillation frequency was found to be independent of J , the chamber pressure $P(5 \cdot 10^{-4} - 3 \cdot 10^{-6}$ torr), and the position of the probes. 4) The amplitudes of the high-frequency signal are largest when the probe is near the beam. The maximum values of the amplitudes were 100 v. 5) The periods of the high-frequency oscillations are determined by $T = \kappa T_0/m$, where $m = 2, 3, 4, \dots$, $T_0 = 2\pi r_i/v$; at $\kappa \approx 1.1$, $r_0 = 20$ cm and $a > 0$; at $r_0 = 40$ cm and $a < 0$, $\kappa \approx 0.85$ (see diagram on p. 258). The deviation of κ from unity is connected with deviations of the mean energies of the particles forming clusters from the injection energy. All experimental

Card 2/3

The Problem of the Azimuthal Instability
of Circulating Currents

83169

S/056/60/039/002/006/044
B006/B056

results indicate that circulating currents are unstable and break up into clusters that are arranged uniformly with respect to the azimuth. Within these clusters there exist conditions that are responsible for the occurrence of peculiar radial-phase oscillations. The consequence of this is, e.g., that in collisions with the injector or the chamber walls, the electrons are captured in betatron-type devices. D. P. Ivanov, A. P. Komar, and Yu. S. Korobochko are mentioned. There are 1 figure and 6 references: 5 Soviet and 1 US. +

SUBMITTED: March 5, 1960

Card 3/3

4 ep/5

ACCESSION NR: AP4040310

S/0057/64/034/006/1057/1072

AUTHOR: Samoylov, I.M.; Sokolov, A.A.

TITLE: Investigation of the process of accumulating large electron currents in accelerators

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.6, 1964, 1057-1072

TOPIC TAGS: electron accelerator, betatron injector, electron current accumulation

ABSTRACT: The method proposed by Budker and Naumov (G.I. Budker, AE, 1, 5, 9, 1956; G.I. Budker and A.A. Naumov, CERN Symposium, 1956) for accumulating large numbers of circulating electrons for subsequent betatron acceleration was investigated experimentally with an apparatus that was constructed for the purpose and was not capable of betatron operation or of contracting the orbits. The radius of the chamber was 44 cm, and electrons could be injected at radii greater than 14 cm. The effective height of the chamber was limited to 10 cm by the brackets supporting the injector. The injector has been described elsewhere (I.M. Samoylov, PTE, No. 1, 24, 1959); it was operated with rectangular pulses from 10 to 20 microsec duration, and the divergence of the beam was 2 to 3°. The variable magnetic field was produced by discharge of a

Card 1/3

ACCESSION NR: AP4040310

capacitor through a winding about the central core, and its constant field was produced by a regulated (0.5%) current in another such winding. The pole pieces were shaped to produce a field with index $n = -d \log H / dr$ between 0.4 and 0.5 throughout most of the chamber. The total circulating current and the currents at different radii were measured with a Rogovskiy loop, probes, and dummy targets introduced through openings in the side wall. Injection energies from 10 to 50 keV were employed, and a total circulating current of 20 A was achieved. With low injection currents and moderate pitch of the spiral orbits it was possible to capture 90 to 95% of the injected electrons. Under these conditions the fraction of electrons captured depended strongly on the injection direction, and good beam focusing was important. With large injection currents, when space charge effects were important, the fraction of the injected electrons accumulated decreased with increasing injection current, and the orbital current per turn approached a limiting value. The limiting orbital current per turn was found to be proportional to the three-halves power of the injection energy. The accumulated current was relatively insensitive to injection direction at high currents, and a beam divergence of 10° could be tolerated. The size of the injector was also less important as a limiting factor at high currents. It is concluded that with a slightly larger machine and 150 keV injection, a total circulating current of 400 amp could be achieved, corresponding to the accu-

Card 2/3

L 14237-66 EWT(m)/EPA(w)-2/EWA(m)-2 IJP(c) GS
 ACCESSION NR: AT5007979 S/0000/64/000/000/1065/1072 51
 841

AUTHOR: Abramyan, Ye. A.; Bender, I. Ye.; Bondarenko, L. N.; Budker, G. I.;
Glagolev, G. B.; Kadymov, A. Kh.; Neshkov, I. N.; Naumov, A. A.; Pal'chikov, V.
Ye.; Panasyuk, V. S.; Popov, S. G.; Protopopov, I. Ya.; Rodionov, Yu. I.;
Samoylov, I. M.; Skrinskiy, A. N.; Yudin, L. I.; Kon'kov, N. G.; Mostovoy, Yu. A.;
Nezhevenko, O. A.; Ostreyko, G. N.; Petrov, V. V.; Sokolov, A. A.; Timoshin, I. Ya.

TITLE: Work on the strong-current accelerators of the Nuclear Physics Institute,
 SO AN SSSR. (I) Strong-current pulse accelerators with spiral storage of the elec-
 trons. (II) Strong-current accelerators with one-revolution capture of the in-
 jected electrons

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy.
 Moscow, Atomizdat, 1964, 1065-1072

TOPIC TAGS: high energy accelerator, electron accelerator, electron beam, betatron,
 plasma

ABSTRACT: The work on developing strong-current electron ring accelerators
 was begun in 1965 by the authors at the Nuclear Physics Institute, Siberian Depart-
 ment, Academy of Sciences SSSR, with the object of studying the possibility of

Card 1/3

L 4237-66

ACCESSION NR: AT5007979

forming relativistic stabilized beams. In the laboratories of the Institute experimental studies were carried out on the four methods for obtaining large ring currents of relativistic electrons: (1) spiral method of storing the electrons in installations of the betatron type with subsequent betatron synchrotron acceleration (Budker G. I. CERN Symposium 1, 68 (1956); (2) obtaining of limiting electron currents by means of the injection of electrons from a strong-current linear accelerator into a ring chamber of large aperture with subsequent synchrotron acceleration; (3) storage of electrons in tracks (parking orbits) with constant magnetic field by means of the multiple injection of electrons from another less strong-current accelerator; this method is utilized for the storage of electrons and positrons in experiments with colliding beams (expounded in detail by G. I. Budker in the present collection, p. 274); (4) obtaining of large electron currents by means of the acceleration of electrons by a ring plasma. The present report discusses the first two methods under the following topics: (I) pulsed iron-less betatron with preliminary charge storage (B-2 device); strong-current pulsed synchrotron B-2S; pulsed strong-current betatron with spiral storage (B-3 device). (II) iron-less one-turn strong-current synchrotron (BSB); strong-current pulsed synchrotron B-3M. Orig. art. has: 7 figures.

Card 2/3

L 4237-66

ACCESSION NR: AT5007979

ASSOCIATION: Institut yadernoy fiziki SO AN SSSR (Nuclear Physics Institute,
SO AN SSSR)

SUBMITTED: 2 May 65

ENCL: 00

SUB CODE: NP

NO REF SOV: 001

OTHER: 001

Chish

Card 3/3

L 35920-66 EWT(1)/EWT(m)

ACC NR: AT8015892

SOURCE CODE: UR/0000/65/000/000/0001/0016

AUTHOR: Nelidov, A. B.; Samoylov, I. M.; Sokolov, A. A.

ORG: Institute of Nuclear Physics, Siberian Department AN SSSR, Novosibirsk (Institut yadernoy fiziki Sibirskogo otdeleniya AN SSSR)

TITLE: Properties of the magnetic field of the BSB coreless synchrotron

SOURCE: AN SSSR. Sibirskoye otdeleniye. Institut yadernoy fiziki. Doklady, 1965. Kharakteristiki magnitnogo polya bezzheleznogo sinkhrotrona BSB, 1-16

TOPIC TAGS: synchrotron, skin effect, magnetic field measurement, orbit perturbation / BSB synchrotron

ABSTRACT: The results of field measurements in the BSB coreless single turn synchrotron are discussed. Field measurements were made during a run with sinusoidal pulse current having ~1 msec rise time. The special shape of the guiding magnetic field in the BSB synchrotron is obtained by the use of the skin effect in the doughnut. The walls of the current carrying element are formed in the shape of an ideal field H . The radius of curvature R of the walls has such a form that $n \sim 0.4$, where $n=r/R$ (r =radius of the orbit). The value of n is a function of the ratio $h/\Delta r$, where h represents the height of the guide; it is also a function of the skin depth. Additional variations of the equilibrium region (for $0 < n < 1$) are due to the geometry of the ring,

Card 1/3

L 35920-66

ACC NR: AT6015892

such as feed-in location, beam entrance and beam extraction aperture. The field measurements show the extension of the variation of n around $n \approx 0.4$ in the working region of the ring as a function of the duty cycle with $H(t)$. The degree of orbit perturbation due to field deviations from the azimuthal symmetry was obtained. A series of measurements were made of field deviations due to the presence of metallic plates of different forms and thickness. It was found that the most important field perturbations are due to the nonsymmetrical disposition of the feeders of the inner ring. Such a feed line has a small inductance and is mechanically safe. First, measurements of the magnetic field were made on a scale model (1:1.84) with 4 and 1 kc nonpulsed currents. The choice of $h=30$ cm and $\Delta r=10$ cm was based upon these measurements. Such a configuration gave $t=10$ cm with $n \approx 0.4$. Later, the measurements were made with pulsed currents. The essential measurements were made at three different times of the sinusoidal current. The first interval $t_{m1}=360$ μ sec. The second at $t''=t_{m1} + \delta t$, or $400 + 500$ μ sec, and $t_{m3}=950$ μ sec. It was found that at the time of injection, n was about two third hrs. This is an important result, since the field H can change the angle α during the injection. Finally, the field perturbations due to openings and cuts in the ring were found to be small, even for $t_m=950$ μ sec. It was found that the aforementioned configuration of the ring yielded a good region of stability (about 0.4 h) in the ring, that n was near the calculated value, and that the field deviations were small. The measured field deviations correspond to small orbit perturba-

Card 2/3

L 35920-86
ACC NR: AT6015892

2
tions (around 3-5 mm). The authors thank G. I. Budker and A. A. Naumov for their advice and for their interest in the work. Orig. art. has: 5 figures, 1 table.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 004

Card 3/3 *226*

1. 10666-66 EWT(1)/EWT(m)/T/EWA(m)-2 IJP(c)

ACC NR: AP5028315 44,55 SOURCE CODE: UR/0057/65/035/011/2012/2020

AUTHOR: Samoylov, I.M.; Sokolov, A.A. 44,55

ORG: none 38

TITLE: Influence of space charge on the longitudinal motion of particles in accelerators during injection 21,44,55

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 11, 1965, 2012-2020

TOPIC TAGS: particle accelerator, betatron, space charge, particle motion 17,44,55

ABSTRACT: The authors discuss the influence of longitudinal space-charge variations on the motion of charged particles in a weak-focusing cyclic machine in which stable bunches are formed or into which the particles have been injected during a time slightly shorter than that required for a full revolution, thus forming a single artificial bunch. It is shown that radial-phase oscillations develop as a result of the Coulomb interaction of the bunched particles, and equations describing these oscillations are derived. These oscillations limit the total charge that can be accumulated in the orbit, owing to the limited radial width of the channel. Injection experiments, using an internal injector, were performed with the BSB installation, described elsewhere (Raboty po sil'notochnym uskoritelyam IYaf SO AN SSSR, ch. 2. Trudy mezhdunarodnoy konferentsii po uskoritelyam (Dubna, 1963), str.1069, Atomizdat, M.,1964). The accumulated charge increased linearly with injection energy for

Cord 1/2

UDC: 621.384.61

L 10666-66

ACC NR: AP5028315

injection energies from 20 to 80 keV. As a function of injection current, the captured charge reached a maximum at an injection current slightly above 0.1 A, whereas transverse space charge effects should not be significant for injection currents below about 1 A. It is concluded that the accumulated charge was limited by the longitudinal space charge effects discussed above. Quantitative agreement with the theory was not achieved; the measured accumulated charge was less than the calculated value by approximately a factor 2.5. Possible reasons for this discrepancy are coherent radiation and inaccurate evaluation of some of the parameters. After some discussion it is concluded that the discrepancy is not greater than can be reasonably accounted for. The maximum possible charge that can be accumulated, calculated with the present theory, increases rapidly with increasing injection energy, and it is concluded that the gamma yield of betatrons can be increased by more than three orders of magnitude by increasing the injection energy to 1.0-1.5 MeV. The effect of energy scattering in the injected beam is discussed in an appendix. Orig. art. has: 20 formulas, 4 figures, and 1 table.

SUC CODE: 20

SUBM DATE: 23Feb65/

ORIG. REF: 011

OTH REF: 006

Card: 2/2 (77)

ACC NR: AP6031257

SOURCE CODE: UR/0057/66/036/009/1536/1543

AUTHOR: Nelidov, A. B.; Samoylov, I. M.; Sokolov, A. A.

ORG: none

TITLE: Characteristics of the magnetic field of the BSB iron-free synchrotron 19

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 9, 1966, 1536-1543

TOPIC TAGS: electron accelerator, synchrotron, magnetic field

ABSTRACT: The magnetic field configuration of the BSB iron-free single turn synchrotron described elsewhere by G.I.Budker et al (ZhTF 36, 1523 (1966)/see Abstract AP6031256/) has been explored by exciting the magnet with sinusoidal current pulses having rise times of the order of 10^{-3} sec and measuring the field components at different locations with the aid of pickup coils and electronic integrators. The effect on the field configuration of introducing foreign objects (such as copper plates) into the working region was investigated. Some of the field measurements are presented graphically, and possible reasons for the observed field distortions are discussed. The index describing the radial dependence of the field strength was found to be close to the design value of 0.4 throughout a region whose axial extent is nearly half the height of the chamber, and the field distortions were found to be such as to shift the

Card 1/2

ACC NR: AP6031257

beam by some 3 to 5 mm. It is concluded that the internal equipment required for synchrotron operation (the accelerating resonator, measuring equipment, and the like) can be so designed as to produce no appreciable additional distortion of the field. The authors thank G.I. Budker and A.A. Naumov for their interest and advice. Orig. art. has: 6 figures.

SUB CODE: 20/

SUBM DATE: 27Sep65/

ORIG REF: 004/

OTH REF: 000

Card 2/2

L 11430-67 ENT(m) IJR(c)
ACC NR: AP6031259

SOURCE CODE: UR/0057/66/036/009/1550/1559

AUTHOR: Mostovoy, Yu. A.; Samoylov, I.M.; Sokolov, A. A.

ORG: None

TITLE: Single-revolution injection system of the BSB iron-free synchrotron

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 9, 1966, 1550-1559

TOPIC TAGS: electron accelerator, synchrotron, electron injection, spark gap, nano-second pulse

ABSTRACT: The authors discuss the injection system employed in the BSB iron-free electron synchrotron described elsewhere by G.I.Budker et al. (ZhTF 36, 1523, 1966/ see Abstract AP6031256/). In this machine injection is accomplished during a single revolution of the electrons in the 41 cm radius orbit. Single-revolution injection was adopted because the efficiency of many-revolution injection is low in small machines in which the decrease per revolution of the radius of the instantaneous orbit is small. With single-revolution injection, on the other hand, it is in principle possible to capture practically 100% of the injected particles and to reduce the amplitude of the residual betatron oscillations to zero by proper design and positioning of the inflector. The conditions to be satisfied by the inflector for maximum capture efficiency are derived in an appendix; one such condition is that the traject-

Card 1/2

L 11430-67
ACC NR: AP6031259

ory of the injected particles in the absence of the inflector be tangent to the equilibrium orbit at the center of the inflector. In the present machine the inflector is excited by up to 50 kV square pulses of 5 microsec duration applied through a pulse transformer. At the close of the 10 nanosec injection period the inflector is short circuited by the breakdown of two gaps, the breakdown being initiated by a trigger pulse applied to a third electrode in each gap. The design of these gaps, which should be useful for other applications, is discussed in detail in an appendix. The scatter in the breakdown time of these gaps ranged from 2 nanosec to less than 1 nanosec, depending on the height of the trigger pulse. Measurements on a 70 keV injected beam showed that at least 70 % of the injected electrons were captured in an equilibrium orbit and that the amplitude of the betatron oscillations of 50 % of the captured electrons was less than 2 cm. Analogous measurements at the operating injection energy of 600 keV could not be made because of noise from the injector. It is concluded that single-revolution injection is entirely feasible for accelerators in which the period of the equilibrium orbit is as short as 5 nanosec. The authors thank G.I. Budker and A.A. Naumov for their interest in the work, and P.I. Medvedev, V.N. Shchavelin, and M.Ya. Rogutskiy for their participation in the development of different parts of the inflector system.

SUB CODE: 20/

SUBM DATE: 27Sep65/

ORIG REF: 005/

OTH REF: 000

Card 2/2 bab

L 11425-57 EMI(1) JIP(C)
ACC NR: AP6031258

SOURCE CODE: UR/0057/66/036/009/1544/1549

AUTHOR: Livshits, A.A.; Nelidov, A.B.; Samoylov, I.M.; Sokolov, A.A.

ORG: none

TITLE: Magnet power supply for the BSB iron-free synchrotron

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 9, 1966, 1544-1549

TOPIC TAGS: electron accelerator, synchrotron, magnet, power supply

ABSTRACT: The authors describe in some detail the power supply for the magnet of the BSB single turn iron-free electron synchrotron described elsewhere by G.I. Budker et al. (ZhTF 36, 1523 (1966)/see Abstract AP6031256/). The main power supply is a 5 kV 0.045 F capacitor bank coupled to the single turn synchrotron magnet with a pulse transformer that steps the current up by a factor of 10. The pulse transformer consists of a 40 turn primary and a 4 turn secondary of heavy copper strip on a 600 cm² cross section ring-shaped rectangular core of transformer steel sheets. Design features of the pulse transformer that enable it to withstand the electrodynamic forces incident to supplying a secondary current of up to 10⁵ A are discussed. The pulse transformer operates with superposed magnetization, which is provided by discharge through the primary of an auxiliary capacitor bank prior to the discharge of the main

Card 1/2

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ACC NR: AP6031258

capacitors. The time dependence of the magnet current required for synchrotron operation is achieved with the aid of an auxiliary supply containing one or two capacitor banks, which are discharged at appropriate times prior to discharge of the main capacitor bank. Two successful variants of the auxiliary supply are described. The duration of the operating pulse is 1.8 millisecc. The described supply operates at the rate of one pulse every 30 sec; the pulse rate could be increased by a factor of 10 by employing larger rectifiers for charging the capacitors and providing appropriate cooling. The authors thank G.I.Rudker and A.A.Naumov for their interest and advice, and G.S.Morozov, M.Ya.Rogutskiy, G.T.Tsikin, and Ye.V.Shun'ko for their participation in the development of different parts of the power supply. Orig. art. has: 4 figures and 1 table.

SUB CODE: 20/

SUBM DATE: 27Sep65/

ORIG REF: 001/

OTH REF: 000

Card 2/2 bab

L 11426-67 EIT(m) IJP(c)
ACC NR: AP6031256

SOURCE CODE: UR/0057/66/036/009/1523/1535

AUTHOR: Budker, G.I.; Medvedev, P.I.; Mostovoy, Yu.A.; Nezhevenko, O.A.; Kalidov, A.B.;
Ostreyko, G.N.; Panasyuk, V.S.; Samoylov, I.M.

ORG: none

TITLE: The BSB iron-free single turn synchrotron

SOURCE: Zhurnal tekhnicheskoy fiziki, v.36, no. 9, 1966, 1523-1535

TOPIC TAGS: electron accelerator, synchrotron

ABSTRACT: This paper is concerned with the type BSB iron-free single turn synchrotron developed at the IYAF CO AN SSSR for injection of up to 180 MeV electrons into a storage ring. A general description of the machine has been given elsewhere by Ye.A. Abramyan and 22 other authors (Transactions of the International Conference on Accelerators, Dubna, 1963, p.1065, Atomizdat, M., 1964). In the present paper certain features of the accelerator are described in somewhat more detail, including the magnet, the magnet power supply, and the injector, and the adjustment of the machine is discussed. The magnet winding consists of two concentric duralumin rings between which the beam circulates. The outer ring is capable of withstanding a magnetic pressure of 50 atm, and the geometry is such that the inner ring is in equilibrium under the magnetic forces, being subjected only to a hydrostatic pressure. The magnet is powered by a 0.045 F capacitor bank charged to 10 kV. The maximum magnet current is about

Card 1/2

ACC. NR. AIN001256

10^6 A, corresponding to an electron energy of 180 MeV. There are two auxiliary capacitor banks which are discharged at selected phases of the cycle to control the dependence of the magnetic field. Injection of 600 kV electrons is accomplished during a single revolution of the captured electrons. The discharge of the auxiliary and main capacitor banks is so timed that the field is approximately constant during injection. The rf accelerating voltage is frequency modulated from 103.5 to 116 MHz, and is applied to the beam with the aid of a single resonator with a Q of 200. Some difficulties were encountered in the adjustment of the machine, but none that could not be overcome. It was possible to inject about 1.2 A of 600 kV electrons into the approximately constant field, and to accelerate some 20 % of the injected electrons. The maximum beam current was found to be limited by longitudinal space charge effects (the negative mass effect), rather than by transverse space charge effects. It is suggested that higher currents might be achieved with a strong focusing iron-iron pulsed machine. The authors thank A.A.Naumov for his interest and discussion, A.A. Kharitonov for organizing the fabrication of the main parts of the accelerator, and A.I.Kondratyuk, A.A.Ilyashin, and P.G.Kharitonov for participating in the development of certain parts of the accelerator. Orig. art. has: 3 formulas and 6 figures.

SUB CODE: 20/

SUBM DATE: 27Sep65/

ORIG REF: 000/

OTH REF: 001

Cord 2/2 bbb

ZABELIN, V.D., inzh.; OFFENGENDEN, S.R., kand.tekhn.nauk; SAMOYLOV, I.N.,
inzh.

Complete mechanization of the construction of precast reinforced
concrete flumes. Gidr. i mel. 14 no.4:9-19 Ap '62. (MIRA 15:5)

1. Vsesoyuznyy gosudarstvennyy proyektno-izyskatel'skiy i
nauchno-issledovatel'skiy institut Ministerstva sel'skogo
khozyaystva.

(Irrigation canals and flumes)
(Precast concrete construction)

SAMOYLOV, I. V.

"Estuaries of Rivers (Physicogeographic Characteristics)."
Sub 29 Jun 51, Moscow Order of Lenin State U imeni M. V. Lomonosov.

Dissertations presented for science and engineering degrees in
Moscow during 1951.

SO: Sum. No. 480, 9 May 55

SAMOILOV, I.V.

Technology

Moscow river. BYKOV, V.D. O.red.I.V. Samoilov, Moskva, izd-vo Moskovskogo universiteta, '51

MONTHLY LIST OF RUSSIAN ACCESSIONS, LIBRARY OF CONGRESS, JUNE 1952. UNCLASSIFIED.

SAMOILOV, I.V.

Geographers

S.D. Muraveyskiy, geographer and hydrologist. Vop.geog. 26, 1951.

MONTHLY LIST OF RUSSIAN ACCESSIONS, LIBRARY OF CONGRESS, APRIL 1952. UNCLASSIFIED.

HURST, H.; SHMELEV, A.B.[translator]; SAMOYLOV, I.V., doktor geograficheskikh nauk, redaktor; PARCHEVSKIY, O.K., redaktor; SHAPOVALOV, V.I., tekhnicheskiiy redaktor.

[The Nile; a general account of the river and the utilization of its waters. Abridged translation from the English by A.B.Shmelev] Nil; obshchee opisanie reki i ispol'zovaniia ee vod. Sokrashchennyi perevod s angliiskogo A.B.Shmeleva. Predisl. i red. I.V. Samoilova. Moskva, Izd-vo inostrannoi lit-ry, 1954.. 326 p. (MIRA 8:4)
(Nile River)

SAMOYLOV, I.V.

Some problems in dynamics and the morphology of shores in
surveying sea harbors. Trudy Inst.ocean. 10:21-24 '54.(MLRA 7:11)

1. Gosudarstvennyy okeanograficheskiy institut.
(Harbors) (Shore lines)

SAMOYLOV, I.V.,

MAKKAVERIEV, N.I.; AVSYUK, G.A., doktor geograficheskikh nauk, redaktor;
SAMOYLOV, I.V., doktor geograficheskikh nauk, redaktor; MARKOV,
V.I., redaktor; SHEVCHENKO, G.N., tekhnicheskii redaktor.

[River channel and erosion in its basin] Ruslo reki i eroziia v
ee basseine. Moskva, Izd-vo Akademii nauk SSSR, 1955. 345 p.
(Rivers) (Erosion) (MLRA 8:10)

SAMoyLOV, I. V.

AID P - 2619

Subject : USSR/Meteorology
Card 1/1 Pub. 71-a - 22/26
Author : Samoylov, I. V.
Title : ~~Professor B. A. Apollov~~ (65th anniversary and 40 years
of scientific teaching and research activities)
Periodical : Met 1 gidr, 4, 59-60, J1/Ag 1955
Abstract : A short biography of the scientist and hydrometeor-
ological expert, a specialist on the fluctuation data
of the Caspian Sea.
Institution : None
Submitted : No date

BAYDIN, S.S.; LINBERG, F.N.; SAMOYLOV, I.V.

Main features of the hydrological regime of the Volga Delta.
Trudy GOIN no.28:5-38 '55. (MLBA 9:6)
(Volga Delta)

8/11/1956, I.V.
BAYDIN, S.S.; LINBERG, F.N.; SAMOYLOV, I.V., doktor geographicheskikh nauk.
professor; SNEZHINSKAYA, I.V., redaktor; SHUMIKHIN, K.F., tekhnicheskii redaktor.

[Hydrology of the Volga Delta] Gidrologiya del'ty Volgi. Pod red.
I.V.Samoilova. Leningrad, Gidrometeorologicheskoe izd-vo, 1956.
330 p.

(MLRA 10:4)

(Volga Delta--Hydrology)

SAMoyLOV, I. V.

3(4)

PHASE I BOOK EXPLOITATION

SOV/2051

Moscow. Universitet. Geograficheskiy fakul'tet

Voprosy gidrologii (Problems in Hydrology) [Moscow] Izd-vo
Moskovskogo univ., 1957. 231 p. 2,400 copies printed.

Resp. Eds.: I. V. Samoylov and L. D. Kurdyumov; Tech Ed.: M.S.
Yermakov.

PURPOSE: This book is intended for hydrologists and geographers.

COVERAGE: This collection of articles on the hydrology of the
USSR is dedicated to Professor Ye. V. Bliznyak, Doctor of Tech-
nical Sciences. Among the topics discussed are: 1) the effect
of air temperature on flow volume, 2) the calculation of shower
runoff, 3) the speed of flood waters, 4) stream levels, 5)
spring floods, 6) suspended sediments in running streams, 7) the

Card 1/6
2

Problems in Hydrology

SOV/2051

effect of agricultural practices on hydrology, and others. The discussions are accompanied by maps, graphs, and tables illustrating the present or long-term hydrology of the USSR. References accompany each article.

TABLE OF CONTENTS:

Samoylov, I. V. Yevgeniy Varfolomeyevich Bliznyak [Biographical Sketch]	5
Bliznyak, Ye, V. Problems and Prospects in the Study of the Waters of the USSR	10
Apollov, B. A. The Effect of Air Temperature on the Volume of Stream Runoff	19
Samoylov, I. V. The Discharge of Stream Currents Into a Water Reservoir	25
Sokolovskiy, D. L. Some Problems in the Theory and Practice	

Card 2/4
2

SAMOYLOV

ROGOV, Mikhail Mikhailovich; SAMOYLOV, I.V., d-r geogr.nauk, prof., red.;
GROSMAN, R.V., red.; KOZINKIN, V.I., tekhn.red.

[Hydrology of Amu Darya Delta; a geographical and hydrological
study] Gidrologiia del'ty Amu-Dar'i; geografogidrologicheskaiia
kharakteristika. Pod red.I.V.Samoilova. Leningrad, Gidrometeor.
izd-vo, 1957. 253 p. (MIRA 11:1)

(Amu Darya Delta)

SAMOYLOV, I.V.; MIKHAYLOV, V.N.; SIMONOV, A.I.; SKRIPTUNOV, N.A.

Circulation of water off the mouth of the river and associated processes. Trudy Okean. kom. 10 no.1:100-106 '60. (MIRA 14:6)

1. Gosudarstvennyy okeanograficheskiy institut Glavnogo upravleniya gidrometeorologicheskoy sluzhby.
(Estuaries)

SAMOYLOV, I.V.

Some new problems in the training of geography teachers. Uch.
zap. MGPI no.1595-11 '60. (MIRA 16:9)

SAMOYLOV, I.V.; LEBEDEV, P.N.

Visual aids of the geographical faculty Jch. zap. MPI no.159:
63-76 '60. (MIRA 16:9)

SERGEYEV, P. (Ordzhonikidze); YAROPOLOV, G. (Leningrad); YEVDOKIMENKO, I.,
inzhnere-mekhanik (Chernigov); MIKHALEV, V. (Moskva); BUSLAYEV, V.;
GEL'BRAS, A.; SAMOLOV, K. (Noginsk)

Opening the mail. Tekh.mol. 29 no.9:32-33 '61. (MIRA 14:10)
(Technological innovations)

SAMOYLOV, Kh.

107-5-33/54

AUTHOR: Samoylov, Kh.

TITLE: A Tube-Filament Tester (Probnik dlya proverki nitey nakala lamp)

PERIODICAL: Radio, 1956, Nr5, p 41 (USSR)

ABSTRACT: A simple neon-lamp tester of continuity of heating (or filament) circuits of radio equipment or for filament testing of individual tubes.
Suitable for testing of all Soviet-make bantam and octal-base tubes except for two types of vacuum-tube rectifiers.

AVAILABLE: Library of Congress

Card 1/1

107-57-3-20/64

AUTHOR: Samoylov, K. (Cherkessk, Stavropol' kray)

TITLE: Change of Connections in the Line Transformer of a TU-600 Amplifier.
Suggestions of Rural Radio Men (Pereklyucheniye fidernogo transformatora v
usilitele TU-600. Sel'skiye radiofikatory predlagayut)

PERIODICAL: Radio, 1957, Nr 3, p 17 (USSR)

ABSTRACT: Wire-broadcast subscriber lines brought directly to a wire-broadcast station cannot be connected directly to the TU-600 amplifier because the amplifier has no 30-volt output. The lines should be connected through service transformers in such a case. However, the transformers can be eliminated if the line-transformer connections are changed. The change of connections is explained in the article. With the load under 10 w, even a change of connections is unnecessary; the subscribers' line can be connected directly to "60 w" or "90 w" contacts.

Card 1/1

SAMOYLOV K.

On friendly wavelergths. Avtom., telem. i sviaz' 9 no.5:18-19 My
'65. (MIRA 18:5)

SAMOYLOV, K.I.

Engineer Elena Burova; sketch. Avtom., telem. i sviaz' 3 no.3:
38-40 Mr '59. (MIRA 12:5)

(Burova, Elena)

SAMOYLOV, L.I.

The GT-12-3 gas turbine unit. Biul. tekhn.-ekon. inform. no.1:41-43
'57. (MIRA 11:4)

(Gas turbines)

SAMOYLOV, L.I.

Modeling and profiling of steam-jet ejectors. Trudy BOMZ
no.1:53-61 '63. (MIRA 16:6)

(Distillation apparatus)

ACC NR: AR6032063

SOURCE CODE: UR/0271/66/000/007/B021/B021

AUTHOR: Samoylov, L. K.

TITLE: Capacitive registers for operational blocks of digital differential analyzers using semiconductor devices

SOURCE: Ref. zh., Avtomatika, telemekhanika i vychislitel'naya tekhnika, Abs. 7B156

REF SOURCE: Sb., Poluprovodnik. elementy v vychisl. tekhn., M., 1965, 50-61

TOPIC TAGS: digital differential analyzer, semiconductor device, capacitive register, operational block, capacitive storage cell

ABSTRACT: A design variant of operational storage registers for the operational blocks of digital differential analyzers is given. It is a capacitive register using the effect of charge storage on the capacitor. As compared to other registers, this register is similar in circuitry and technology. A detailed study was made of the operating principle of the capacitive storage cell consisting of two series-connected diodes with a capacitance connected between them, on whose second plate the control pulses are transmitted. Several operating conditions for such a

Card 1/2

UDC: 681.142.642.7

ACC NR: AR6032063

cell are analyzed and the procedure for the calculation of its parameters is given. The operation of the control pulse generator is also given. Semiconductor key circuits were used as the bipolar control pulse source. The number of these amplifiers is determined by the number of register digits. The results of the calculations were verified experimentally on registers using type-D9I and D106 diodes. The orig. art. has 10 illustrations and a bibliography of 1 title. [Translation of abstract]

SUB CODE: 09/

Card 2/2

ACC NR: AP6029877

SOURCE CODE: UR/0413/66/000/015/0041/0041

AUTHOR: Samoylov, L. K.

ORG: none

TITLE: Half-wave delay line. Class 21, No. 184294 [announced by Taganrog Radio Engineering Institute (Taganrogskiy radiotekhnicheskiy institut)]

SOURCE: Izobret. prom. obraz. tovar. zn., no. 15, 1966, 41

TOPIC TAGS: circuit delay line, delay circuit, transistorized circuit

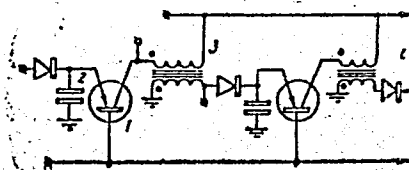
ABSTRACT: This Author Certificate presents a half-wave delay line containing n series connected units made of transistors and magnetic units with intermediate information storage on capacitors. To simplify the device and to broaden its frequency range, the transistor in each unit is connected with a common base. The capacitor is connected between the transistor emitter and "ground," an output transformer is connected in the collector circuit, and the cycle pulses are fed to the base (see Fig. 1).

Fig. 1. 1 - transistor;
2 - capacitor; 3 - output transformer

Orig. art. has: 1 diagram.

SUB CODE: 09/ SUBM DATE: 30Mar64

Card 1/1 mla



UDC: 621.374.5

USSR/Nuclear Physics - Tritium

FD-2337

Card 1/2

Pub. 146 - 2/34

Author : Vlasov, N. A.; Kalinin, S. P.; Ogloblin, A. A.; Samoylov, I. N.;
Sidorov, V. A.; and Chuyev, V. I.

Title : Interaction of protons with tritium, and the excited state of
helium-4

Periodical : Zhur. eksp. i teor. fiz. 28, 639-650, Jun 1955

Abstract : The authors describe experiments investigating the reactions $T(pn)$
 He^3 and $T(p\gamma)He^4$ in the interval of proton energies up to 7 Mev.
The energy of the protons in the beam from the cyclotron chamber
was varied by way of slowing in lead filters. Serving as detec-
tors of the neutrons were so-called all-wave counter and uranium
chamber; a scintillational counter served as detector of the gamma
rays, with NaI(Tl). The curve of cross-section, σ , versus
proton energy, E_p , for the first reaction possesses a maximum at
 $E_p=3$ Mev. For the second reaction the cross-section increases
monotonically in the entire energy interval. Also investigated
were the angular distributions of neutrons and gamma rays. The
characteristics of the excited state of helium-4 are discussed.
The authors thank the associates of the Cyclotron Laboratory. and
also Ya. A. Smorodinskiy, A. I. Baz', and Yu. M. Popov. Fourteen
references, including 2 USSR (B. V. Rybakov, same issue, p. 651;
A. I. Baz' and Ya. A. Smorodinskiy, *ibid.* 27, 382, 1954).

Acad Sci, USSR

Submitted: Mar '55

30-58-4-20/44

AUTHORS: Baz', A. I., Candidate of Physical and Mathematical Science
Samoilov, L.N.

TITLE: The Physics of Nuclear Reactions With Small and Medium Energies
(Fizika yadernykh reaktsiy pri malykh i srednikh energiakh)
Conference in Moscow (Konferentsiya v Moskve)

PERIODICAL: Vestnik Akademii Nauk SSSR, 1958, . . . Nr 4, pp.97-102 (USSR)

ABSTRACT: This All Union conference took place in Moscow in November 1957. The program included all fundamental problems of nuclear physics. A short survey on the transactions makes it possible to understand the problems facing nuclear physics at present. One of the most interesting and most important problems is that of nuclear models, i.e. which is the best way of model representation of nuclear properties. At present these models develop into three main directions:
1) According to the shell model the nucleus can be represented as a self-coordinating potential in the field of which nucleons move.
2) The optical model is usually applied for the quantitative description of the neutron-proton-dispersion on the nuclei.

Card 1/3

30-58-4-20/44

The Physics of Nuclear Reactions With Small and Medium Energies . Conference
in Moscow

3) A great number of phenomena connected with the non-spheroidal form of equilibrium of the nuclei can be understood from the viewpoint of the collective model.

The following reports were delivered:

- 1) P. E. Nemirovskiy: On results of the theoretical analysis of the interaction of neutrons of small and medium energies with nuclei.
- 2) V. V. Vladimirovskiy, Ye. V. Inopin, S. I. Drozdov: On problems of the optical model.
- 3) V. M. Agranovich, A. S. Davydov: On theoretical foundations of the nuclear models.
- 4) B. L. Birbrair, L. A. Sliva: On the form of equilibrium of the nucleus.
- 5) N. A. Vlasov: On excited states of the α -particle.
- 6) F. L. Shapiro: On the problem of the state 0^+ .
- 7) I. I. Levintov: On the radius determination of the α -particle.
- 8) Ye. K. Zavoyskiy: On the construction of accelerators.

Card 2/3

30-58-4-20/44

The Physics of Nuclear Reactions With Small and Medium Energies. Conference in Moscow

- 9) G. Barshall(USA): On the investigation of polarization phenomena.
- 10) Yu. A. Aleksandrov: On the electromagnetic interaction of fast neutrons and nuclei.
- 11) G. N. Flerov: On works of his group concerning nuclear reactions.
- 12) A. I. Alikhanov: On measurements of the polarization of electrons forming during β -decay.

1. Nuclear physics—USSR

Card 3/3

Samoylov L.N.

89-3-22/30

AUTHORS: Baz', A. I. , Samoylov, L. N.

TITLE: All-Union Conference on Nuclear Reactions of Small and Medium Energies (Vsesoyuznaya konferentsiya po yadernym reaktsiyam pri malykh i srednikh energiyakh)

PERIODICAL: Atomnaya Energiya, 1958, Vol. 4, Nr 3, pp. 306 - 311 (USSR)

ABSTRACT: From November 17 - 27, 1957, in Moscow the conference mentioned in the title took place. 500 participants from the USSR and 37 foreigners (from 17 nations) came to the conference. It only briefly and partially can be reported on the results.

Nuclear reactions at light nuclei.

$T(p,n) He^3$ and $He^4(p,p')$ -reactions confirm the presence of an about 22 MeV-state in He^4 with $J = 2^-$, $T = 0$. A second excited state at 24 - 25 MeV might be present ($T = 1$). By the reaction $Li^6(p,n) Be^6$ for the first time it could definitely be shown that the nucleus Be^6 is existing. It is instable to α and double proton decay.

Card 1/4

89-3-22/30

All Union Conference on Nuclear Reactions of Small and Medium Energies

11 levels were found in the nucleus Li^6 . The neutron scattering cross sections of slow neutrons ($E_n = 0,0047 \text{ eV}$) for the scattering on tritium are the following:

$$\sigma(\text{ortho-tritium}) = 4,5 \pm 1,0 \text{ b}$$

$$\sigma(\text{para-tritium}) = 1,0 \pm 1,5 \text{ b}$$

Polarization effects in nuclear reactions.

A number of works were discussed in which the polarization of the particles takes place in the simple reactions T(d,n) ; D(d,n) ; D(d,p) ; $\text{C}^{12}(\text{p,p})$. It was reported in detail on the γ -polarization of the reaction $\text{Si}^{30}(\text{p}, \gamma)\text{P}^{31}$.

Neutron-reactions.

First the particularities concerning the apparatus of the neutron-spectrometers were discussed. The spectrometer of Shapira has to be mentioned especially, the resolving power of which is 15 % at $E_n < 1 \text{ KeV}$ and 35 % at $E_n = 10 \text{ KeV}$.

A lecture on the electromagnetic interactionⁿ between neutron and nuclei was especially discussed. It is believed that there are experimental indications that the neutron is deformed in the electric nuclear field and thereby obtains an electrical dipole moment.

Deuteron-reactions.

Card 2/4

89-3-22/30

All Union Conference on Nuclear Reactions of Small and Medium Energies

The experimental data of the reactions $\text{Ca}^{46}(\text{d},\text{p})\text{Ca}^{47}$, $\text{P}^{31}(\text{d},\text{p})\text{P}^{32}$ are compared with the data theoretically calculated beforehand and a satisfactory conformity is found.

A number of excited levels from the reactions $\text{Li}^7(\text{d},\text{d}')$ and $\text{Al}^{27}(\text{d},\text{d}')$ were found in Li^7 and Al^{27} .

Coulomb's excitation and Proton-reactions.

A review lecture dealt with the present picture and the experimental understanding of these reactions.

The excitation functions and the angular distribution of the γ -quanta for Coulomb's excitation reactions with 1,8-3,4 MeV-protons of the nuclei Cr, Mn, Ni, Ge, Fe, Cu and Zn were measured.

It is reported on the measuring of the differential effective cross section of the reactions $\text{Co}^{59}(\text{p},\text{p}')$, $\text{Pb}^{207}(\text{p},\text{p}')$, $\text{Pb}^{208}(\text{p},\text{p}')$, $\text{Bi}^{209}(\text{p},\text{p}')$ and $\text{U}^{238}(\text{p},\text{p}')$ with $E_p = 19,8$ MeV.

Photonuclear reactions.

The problem of the "giant"-resonances was especially discussed and it was ascertained that there are still discrepancies between the observed resonances and the theoretically predicted fission of the resonances.

Card 3/4

89-3-22/30

All Union Conference on Nuclear Reactions of Small and Medium Energies

A number of reports dealt with (α, p') , $(\gamma, 3\alpha)$, $(\gamma, 4\alpha)$
 $(\gamma, p\alpha)$ -processes.

Reactions caused by multifariously charged ions.

Here it was reported on the reactions: $\text{Au}(N, 4n)$, $\text{Au}(N, 5n)$,
 $\text{Au}(N, 6n)$, $\text{U}^{235}(N, f)$, $\text{U}^{238}(N, f)$, $\text{Al}(N, f)$, $\text{Re}(N, f)$ etc.

Nuclear models.

Here the pro and con of the single nuclear models, as they
are used by the theorists nowadays, was discussed. There is
1 figure.

AVAILABLE: Library of Congress

1. Nuclear reactions-Polarization effects
2. Neutron reactions-
Photonuclear reactions

Card 4/4

SAMOYLOV, L.N.

BAZ', A.I., kand. fiz.-mat. nauk; SAMOYLOV, L.N.

Physics of nuclear reactions at low and moderate energies;
conference in Moscow. Vest. AN SSSR 28 no.4:97-102 Ap '58.
(Nuclear reactions--Congresses) (MIRA 11:5)

SAMOILOV, L. N.

RUMANIA/Nuclear Physics - General Problems.

C

Abs Jour : Ref Zhur Fizika, No 1, 1960, 227

Author : Baz. A.I., Samoilov, L.N.

Inst ; -

Title : All-Union Conference on Nuclear Reactions at Small
and Medium Energies, Held in Moscow on 19 - 27
November 1957.

Orig Pub : An. Rom.-Sov. Ser. mat.-fiz., 1959, 13, No 1, 136-
144

Abstract : Translated from the journal Atomnaya Energiya /Atomic
Energy/ 1958, 4, No 2, See Referat Zhur Fizika, 1958,
No 10, 22147.

Card 1/1

- 9 -

21(7)

SOV/56-36-2-53/63

AUTHORS: Bogdanov, G. F., Vlasov, N. A., Kalinin, S. P., Rybakov, B.V.,
Samoylov, L. N., Sidorov, V. A.

TITLE: The Reaction $T(p,n)He^3$ at Proton Energies of 7 to 12 Mev
(Reaktsiya $T(p,n)He^3$ pri energii protonov 7 - 12 MeV)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,
Vol 36, Nr 2, pp 633-636 (USSR)

ABSTRACT: The present paper deals with the measurement of the cross sections and of the angular distributions of the reaction $T(p,n)$ in the interval 7 - 12 Mev of proton energies. Moreover, the authors tried to measure the polarization of the neutrons in this reaction. A solid tritium-zirconium target (thickness 20 μ) was bombarded by protons accelerated to 12 Mev in a cyclotron. The neutron flux was measured by a telescope consisting of 4 proportional counters and also by a spectrometer. The cross sections are measured with a precision of 10%. The first diagram shows the results of the measurement of the cross section under the angle 0° and previously published results of the measurements in the energy interval of 1 - 7 Mev. The cross section is approximately constant in the investigated energy interval, and it increases

Card 1/3

The Reaction $T(p,n)He^3$ at Proton Energies of 7 to 12 Mev

30V/56-36-2-53/63

slightly at energies of 11 - 12 Mev. The second diagram gives the angular distributions of the neutrons at the energies 8.8; 8.9; and 12 Mev. The high forward-backward anisotropy indicates an intense interference of the states of different parity. The curves given in the figures correspond to expressions of the type $\sigma(\theta) = A + B\cos\theta + C\cos^2\theta + D\cos^3\theta + E\cos^4\theta$ in the c.m.s.. The coefficients of these expressions were calculated by the method of least squares and they are given in the following table:

E_p (Mev)	A	B	C	D	E	σ_t (mb)
6.8	11.1	11.3	24.4	-51.4	25.3	305
8.9	13.3	1.0	1.3	-28.4	27.3	241
12.0	13.0	7.5	-23.7	-24.9	44.6	176

The third diagram shows the energy dependence of the reaction. The investigation of the polarization of the neutrons produced in the reaction $T(p,n)He^3$ is important for the determination of the characteristics of the excited states of an α -particle. The inverse reaction $He^3(n,p)T$ was investigated according to a method suggested by H. H. Marshall. According to this method,

Card 2/3

SOV/56-36-2-53/63

The Reaction $T(p,n)He^3$ at Proton Energies of 7 to 12 Mev

the absolute values of the polarization can be measured without an analyzer of known polarization properties. According to the measurements discussed in the present paper, for $E_p \lesssim 10$ Mev and for the angles satisfying Barshall's condition asymmetry is not higher than 5%. A noticeable asymmetry was observed in the case $\theta_1 = \theta_2 = 40^\circ$, and this asymmetry indicates a polarization of the neutrons. θ_1 denotes the angle under which the chamber filled with He^3 (10 atmospheres) was placed in the neutron beam. By means of a telescope of proportional counters, the right-left asymmetry of the flying off of protons from the reaction $He^3(n,p)T$ under the angle θ_2 was measured. There are 3 figures, 1 table, and 9 references, 6 of which are Soviet.

SUBMITTED: November 17, 1958

Card 3/3

21(7)

AUTHORS:

Artemov, K. P., Kalinin, S. P.,
Sanoylov, L. N.

SOV/56-37-3-12/62

TITLE:

The Scattering of Protons on He^3 at Energies of 5 - 10 Mev

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,
 Vol 37, Nr 3(9), pp 663-666 (USSR)

ABSTRACT:

With a view of explaining the states and the structure of the Li^4 -nucleus various authors already investigated the proton scattering on He^3 -nuclei (Refs 1-5). The present paper gives a report on investigations at the proton energies 9.6, 8.6, 7.9, 6.8, and 5.5 Mev. The 9.6 Mev protons were obtained direct from the cyclotron, the protons of lower energies were obtained by slowing down. The gas target (He^3 with 800 Hg) had a window that was closed by means of an iron foil (6 mg/cm²). The proton flux impinging upon the target was measured by means of a Faraday cylinder, the scattered protons were recorded by means of photographic plates. The measured differential proton cross sections on He^3 are shown in diagrams for the five E_p -values (E_p is given in the

Card 1/2

The Scattering of Protons on He^3 at Energies
of 5 - 10 Mev

SOV/56-37-3-12/62

laboratory system)(Figs 1-5), viz. in dependence on the scattering angle θ . All curves have low minima between 90 and 120°. The experimentally obtained results are compared with the theoretical results obtained by other authors under different assumptions with respect to the nature of the nuclear forces (The symmetric and the Serber variant). Above all, results obtained by Innas et al. (Ref 4) are mentioned, which had been obtained by means of the optical model and in consideration of the spin-orbit coupling. In figure 2 (curve C) the $\sigma(\theta)$ -results of this paper for $V_0=36$ Mev are plotted; qualitative agreement is found. The curves A in all diagrams have been calculated according to Serber's type, and curve B for the assumption of symmetry. The former show better agreement with the experiment. From the energy dependence of the cross sections it is not possible to draw conclusions as to the discrete levels of the Li^4 -nucleus; it may, however, be said that this nucleus possesses no state with a life-time essentially exceeding the collision time. There are 5 figures and 8 references, 2 of which are Soviet.

SUBMITTED:
Card 2/2

April 17, 1959

SAMOYLOV, L. N., Cand Phys-Math Sci -- (diss) "Reaction $T(pn)He^3$ and excited states of alpha-particles." Leningrad, 1960. 7 pp; (Leningrad Order of Lenin State Univ im A. A. Zhdanov); 200 copies; price not given; (KL, 26-60, 130)

33085
S/638/61/001/000/007/056
B102/B138

24.6600
AUTHORS:

Artemov, K. P., Kalinin, S. P., Samoylov, L. N.

TITLE:

Proton scattering from He^3 at 9.6, 8.6, 7.9, 6.8, and 5.5 Mev

SOURCE:

Tashkentskaya konferentsiya po mirnomy ispol'zovaniyu
atomnoy energii. Tashkent, 1959. Trudy. v. 1. Tashkent,
1961, 73-75

TEXT: The angular distribution curves were measured for protons of 9.6, 8.6, 7.9, 6.8, and 5.5 Mev (energies in the laboratory system) scattered in He^3 gas targets. The 9.6-Mev protons came directly from the cyclotron, the other energies were obtained by appropriate slowing-down processes. The target vessel had a window closed by a 6-mg/cm² iron foil, and a pressure of about 800 mm Hg inside. The background ranged from 20% (9.6 Mev) to 70% (5.5 Mev). The proton flux at the target was measured by a beam catcher with integrator. The scattered protons were recorded by photographic plates 125 mm from the target center arranged at angles of 20-155°. The distribution curves were compared with theoretical curves obtained from the optical model. A qualitative agreement was found in

Card 1/2

Proton scattering from He^3 ...

33085
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B102/B138

essence. [Abstracter's note: A figure not shown is mentioned in the text; it should give the results and show a comparison with the theoretical distribution curves.] There are 8 references: 2 Soviet and 6 non-Soviet. The four most recent references to English-language publications read as follows: Sweetman D. Phil. Mag. ser. 7, 46, 358, 1955; Lovberg R., Phys. Rev. 103, 1393, 1956; Bransden B., Robertson H., Proc. Phys. Soc., 72, 770, 1958; Famularo K. et al. Phys. Rev. 93, 928, 1954.

ASSOCIATION: Institut atomnoy energii AN SSSR (Institute of Atomic Energy AS USSR)

Card 2/2

X

33086
S/638/61/001/000/008/056
B102/B138

24.6600
AUTHORS:

TITLE:

SOURCE:

Artemov, K. P., Vlasov, N. A., Samoylov, L. N.

Polarization of neutrons of reaction $T(p,n)He^3$, and protons of reaction $He^3(n,p)T$

Tashkentskaya konferentsiya po mirnomy ispol'zovaniyu atomnoy energii. Tashkent, 1959. Trudy. v. 1. Tashkent, 1961, 75-79

TEXT: The polarization of nucleons emitted in $T(p,n)He^3$ and $He^3(n,p)T$ reactions was studied in order to clear up divergences in previous conclusions regarding the He^4 states in the corresponding (p,γ) reactions published by other authors. Polarizations were measured by the method of H. H. Barschall (Helv. Phys. Acta, 29, 145, 956). Noticeable polarization was observed at angles twice the size of Barschall's. The dependence of polarization on angles and energies was investigated. The $T(p,n)He^3$ reaction was studied on a tritium zirconium target with 10-Mev proton bombardment. Protons were decelerated by platinum foils. The protons emitted in the reverse reaction were recorded by a rotating counter telescope. X

Card 1/3

33086
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B102/B138

Polarization of neutrons of ...

Best results were obtained at $E_p = 10$ Mev and $\theta_1 = 40^\circ$ (angle between direction of neutron emission and proton beam). The right-left asymmetry $R = N_{\text{right}}/N_{\text{left}} = (1 + P_1 P_2)/(1 - P_1 P_2)$ was studied. P_1 and P_2 are the polarizations of emitted neutrons and protons, respectively. The $R(\theta_2)$ curves (θ_2 is the angle between neutron directions and proton emission direction) show that $P_1(40^\circ) > P_2(40^\circ)$ for $E_p = 9.9$ Mev and a Barschall angle of $\theta_1 = 16.5^\circ$. P_1 is about 30% and increases with E_p . This means that the $T(p,n)He^3$ reaction is a good source of polarized neutrons with $E_n = 8$ Mev or more. The angular dependence of the polarization seems most appropriate for an interference of the $P_{3/2}$ and $P_{1/2}$ states of the emitted nucleons. The first state corresponds to resonance in the $T(p,n)He^3$ reaction with $E_p = 3$ Mev; however, a resonance may also exist with higher E_p . It follows from the neutron angular distribution that the d-state phases become considerable at $E_p = 10$ Mev, which makes interpretation of polarization difficult. There are 3 figures and 12 references: 5 Soviet and 7 non-Soviet. The four most recent references to English-language

Card 2/3

33086

S/638/61/001/000/008/056
B102/B138

Polarization of neutrons of ...

publications read as follows: Hofstadter R. Rev. Mod. Phys., 28, 214, 1956. Tyren H., Tibell Cr., Marris Th. A. I. Nucl. Phys., 4, 277, 1957. Perry I. E., Bame S. T. Phys. Rev., 99, 1368, 1955. Willard H. B., Bair T. K., Kingston T. D. Phys. Rev., 95, 1359, 1954.

ASSOCIATION: Institut atomnoy energii AN SSSR (Institute of Atomic Energy AS USSR)

Card 3/3

X

LAVRENCHIK, V.N.; SAMOYLOV, L.N.; CHULKOV, P.M.; GORBUNOV, V.F.

Concentration of Be^7 in the atmosphere over the Atlantic Ocean.

Atom. energ. 13 no.1:25-30 J1 '62. (MIRA 15:7)

(Atlantic Ocean--Atmosphere) (Beryllium--Isotopes)

L 14933-63

EWI(m)/BDS AFPTC/ASD DM

ACCESSION NR: AP3003979

8/0089/63/015/001/0062/0064

AUTHORS: Alekseyev, N. V.; Arifkhanov, U. R.; Vlasov, N. A.; Da.y*dov, V. V.;
Samoylov, N. N.

TITLE: Apparatus for the study of polarization of fast neutrons

SOURCE: Atomnaya energiya, v. 15, no. 1, 1963, 62-64

TOPIC TAGS: fast neutron, neutron polarization, neutron scattering, He

ABSTRACT: The cyclotron laboratory of the Institute for Atomic Energy is planning to study polarized neutrons in the energy range from 5 to 40 mev. The paper describes the apparatus assembled for this purpose, and the results of neutron polarization measurements from the reaction $T(p,n) He^3$ conducted with this apparatus. For the analysis of polarized neutrons, their scattering on He^4 under 123F was used. Helium pressure was 100 atm., scintillations from Alpha particles were recorded with a photomultiplier; the scattered neutrons - with scintillation counters. The coincidence of both counts registered the events of neutron-Alpha scattering. For elimination of geometrical assymetry, a solenoid was used which rotated the polarized neutrons by 90 degrees. The neutron polarization was found to be 28.6 plus or minus 4.1% for proton energy of 10.5 mev. incident under 40F. A detailed description of apparatus is given in a preprint of the Institute for Atomic Energy

Card 1/1

LAVRENCHIK, V.N.; SAMOYLOV, L.N.; CHULKOV, P.M.; GORBUNOV, V.F.;
VEL'TISHCHEVA, N.S.

Air contamination by artificial radioactive substances over the
Atlantic Ocean in 1961. Atom. energ. 14 no.6:569-572 Jэ '63.
(MIRA 16:7)

(Atlantic Ocean—Radioactive fallout)

ALEKSEYEV, N.V.; ARIFKHANOV, U.R.; VLASOV, N.A.; DAVYDOV, V.V.; SAMOYLOV, L.N.

Apparatus for studying the polarization of fast neutrons. Atom.
energ. 15 no.1:62-64 J1 '63. (MIRA 16:8)
(Neutrons) (Polarization (Nuclear physics))

ALEKSEYEV, N.V.; ARIFKHANOV, U.R.; VLASOV, N.A.; DAVYDOV, V.V.;
SAMOYLOV, L.N.

Neutron polarization in the reactions $T(p, n)He^3$ and $D(d, n)He^3$.
Zhur. eksp. i teor. fiz. 45 no.5:1416-1424 N '63. (MIRA 17:1)

VLASOV, N. A.; SAMOYLOV, L. N.

"Concerning Heavy Isotopes of Hydrogen."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22
Feb 64.

Inst Atomic Energy, AS USSR

VLASOV, N. A.; SAMOYLOV, L. N.

Heavy hydrogen and neutron isotopes. Atom. energ. 17 no.1:3-9
Jl '64. (MIRA 17.7)

ACCESSION NR: AP4042256

S/0089/64/017/001/0003/0009

AUTHORS: Vlasov, N. A.; Samoylov, L. N.

TITLE: Concerning heavy hydrogen and neutron isotopes

SOURCE: Atomnaya energiya, v. 17, no. 1, 1964, 3-9

TOPIC TAGS: heavy particle, hydrogen, neutron, isotope, binding energy, isotopic spin

ABSTRACT: In view of the considerable interest in this question, the authors review the latest experimental data on the states of four- and five-nucleon nuclei. The data confirm the existence of three unbound excited states of He^4 (20.1 MeV, 0^+ , $T = 0$; 22 MeV, 2^- , $T = 0$; 24--25 MeV, 1^- , $T = 1$). The isobar nuclei H^4 and Li^4 have no bound states and their lifetime is on the order of 10^{-22} sec. The nucleus H^5 has likewise no bound state and decays into $\text{H}^3 + 2n$ with energy $Q \geq 1$ MeV and a lifetime on the order of 10^{-22} sec. The reported

Cord 1/2

ACCESSION NR: AP4042256

radioactivity of H^5 is in error. An analysis of the binding energy of nuclei with known masses indicates that there is likewise no bound state of n^4 . Several arguments are advanced to demonstrate that H^4 , H^5 , and n^4 as well as the heavier hydrogen and neutron isotopes lie beyond the limits of stability with respect to decay with nucleon emission. Nevertheless, it is concluded that the determination of the energy of the virtual states in these and other unstable nuclei is of interest from the point of view of determining the position of the stability limit and the isotopic spins of excited states of isobar states. The results can also cast light on the possible existence of neutron drops with density lower than nuclear. Orig. art. has: 6 figures.

ASSOCIATION: None

SUBMITTED: 13Feb64

ENCL: 00

SUB CODE: NP

NR REF SOV: 015

OTHER: 031

Card 2/2

ACCESSION NR: AP4043612

S/0056/64/047/002/0433/0438

AUTHORS: Alekseyev, N. V.; Arifkhanov, U. R.; Vlasov, N. A.;
Davy*dov, V. V.; Samoylov, L. N.

TITLE: Polarization of neutrons in the reaction $T(d, n)He^3$

SOURCE: Zh. eksper. i teor. fiz., v. 47, no. 2, 1964, 433-438

TOPIC TAGS: neutron reaction, polarization, deuteron scattering,
tritium, alpha particle reaction

ABSTRACT: This is a continuation of earlier research with He^3 (ZhETF
v. 45, 1416, 1963) and is aimed at attaining polarized neutrons of
higher energy than in the past. The energies of the incident deu-
terons ranged from 9 to 19 MeV and analysis was by means of scatter-
ing from a gaseous helium scintillator connected for a coincidence
circuit with two neutron counters. To exclude the effects of geo-
metrical asymmetry, the neutron spin was turned through 90° in the

Card 1/5

ACCESSION NR: AP4043612

longitudinal magnetic field of a solenoid, with the reversal of the scattering direction from left to right and vice versa being produced by reversing the direction of the current in the solenoid. The polarization of the neutrons in the reaction $T(d, n)He^4$ at a laboratory angle close to 30° exceeds 50% over a wide range of deuteron energies, so that strongly polarized neutrons with energy up to 40 MeV can be produced by this reaction. Resonance effects previously observed upon variation of the cross section of the reactions $T(d, n)He^4$ in the ground and 20-MeV excited states, as well as in dT scattering, were also observed in the present results. These resonance effects must be taken into account in the phase shift analysis of the α -n scattering, and are connected with the excited states of the He^5 nucleus (16.7 and 20 MeV). "The authors are grateful to S. P. Kalinin and N. I. Venikov for interest in the work and for ensuring operation of the cyclotron, and also V. A. Kovtun and V. A. Stepanenko for preparing the tritium targets." Orig. art. has: 4 figures and 1 table.

Card 2/5

ACCESSION NR: AP4043612

ASSOCIATION: None

SUBMITTED: 02Mar64

ENCL: 02

SUB CODE: NP

NR REF SOV: 003

OTHER: 014

Card 3/5

ACCESSION NR: AP4043612

ENCLOSURE: 01

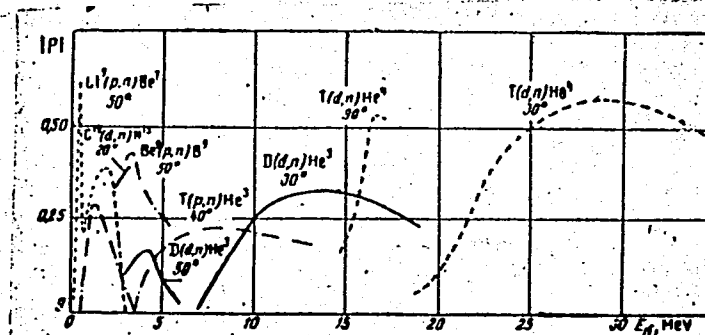
Summary data on neutron polarization

E_d , MeV	θ_{lab} , deg	E_n , MeV	θ_{lab} , deg	ϵ , %	\bar{P}_n , %	P_n , %
8.7 \pm 0.7	30	24.7	123	36.0 \pm 2.6	67.2	53.7
11.0 \pm 0.6	30	26.9	123	38.0 \pm 3.6	69.7	54.5
11.7 \pm 1.0	30	27.5	123	39.2 \pm 2.3	74.0	53.0
12.2 \pm 0.5	30	28.0	123	43.9 \pm 3.4	75.0	58.6
13.1 \pm 0.0	30	28.8	123	45.3 \pm 3.0	76.2	50.5
15.4 \pm 0.0	30	30.0	123	41.4 \pm 4.2	80.3	51.6
17.3 \pm 0.8	30	32.6	123	37.5 \pm 4.3	82.5	45.5
19.0 \pm 0.8	15	35.0	123	4.1 \pm 5.1	84.6	4.8
19.0 \pm 0.8	30	34.1	123	36.5 \pm 4.4	83.1	44.0
19.0 \pm 0.8	45	31.4	123	15.6 \pm 3.2	79.6	10.6
19.0 \pm 0.8	73	25.2	123	12.6 \pm 5.9	68.0	18.5
19.0 \pm 0.8	92	21.1	123	12.2 \pm 10.3	58.8	-20.7
19.0 \pm 0.8	30	34.1	103	13.4 \pm 0.5		
19.0 \pm 0.8	30	34.1	135	38.2 \pm 0.6		
19.0 \pm 0.8	30	34.1	145	36.3 \pm 1.8		

Card 4/5

ACCESSION NR: AP4043612

ENCLOSURE: 02



Neutron polarization in different nuclear reactions

Card

5/5

L13763-63 EWT(m)/EWA(h) AFNL/SSD/ESD(t)

ACCESSION NR: AP4044581

S/0053/64/083/004/0741/0752

AUTHOR: Alekseyev, N. V.; Arifkhanov, U. R.; Vlasov, N. A.;
Davy*dov, V. V.; Samoylov, L. N.

TITLE: Sources of polarized fast neutrons 19

SOURCE: Uspekhi fizicheskikh nauk, v. 83, no. 4, 1964, 741-752

TOPIC TAGS: neutron polarization, deuteron bombardment, proton bombardment, neutron counter, nucleon scattering

ABSTRACT: This is a state-of-the-art review devoted primarily to sources of fast polarized neutrons (FPN) of medium energy (up to 35 Mev). The history of FPN research and some of the problems that can be solved with its aid are briefly reviewed. Along with mentioning various methods for polarization measurements and comparing their advantages and disadvantages, the authors describe the installation used for this purpose at the Institut atomnoy energii im.

L 13763-65

ACCESSION NR: AP4044581

Kurchatova, in which a Hillman solenoid (P. Hillman et al., Nuovo Cimento v. 6, 67, 1956) is used to rotate the nucleon spin through 90° in a magnetic field. Installations of this type can measure simultaneously the polarization of neutrons in a wide spectral range. Another method especially mentioned is the polarization analysis based on electromagnetic (Schwinger) neutron scattering. Various proton-neutron and deuteron-neutron reactions that yield polarized neutrons are analyzed from the point of view of their efficacy as polarized neutron sources. Although the number of reactions investigated so far is small, the production of neutrons with polarization in excess of 20% is now feasible at energies of 0.3-35 Mev, and it is hoped that the $T(d,n)He^4$ reaction can be made to produce PFN with higher energies. Orig. art. has: 10 figures and 1 formula.

ASSOCIATION: None

2/5

L 13763-65

ACCESSION NR: AP4044581

SUBMITTED: 00

ENCL: 02

SUB CODE: NP

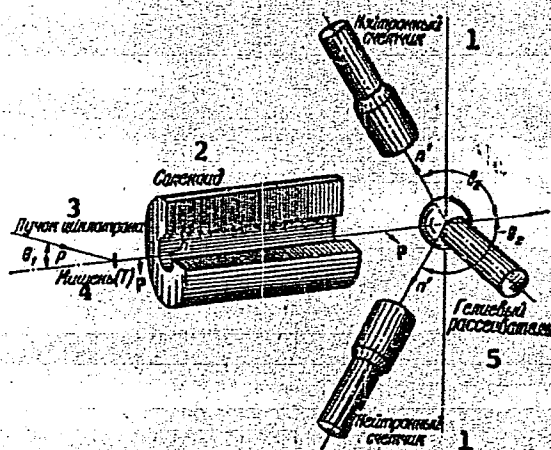
NO REF SOV: 014

OTHER: 031

3/5

L 13763-65
ACCESSION NO. AP4044581

ENCLOSURE 01



- 1 - neutron counter
- 2 - solenoid
- 3 - cyclotron beam
- 4 - target (T)
- 5 - helium scatterer

Fig. 1. Diagram of setup for the measurement of fast-neutron polarization

Card 4/5

1 13763-65
ACCESSION NO: AP4044581

ENCLOSURE: 02

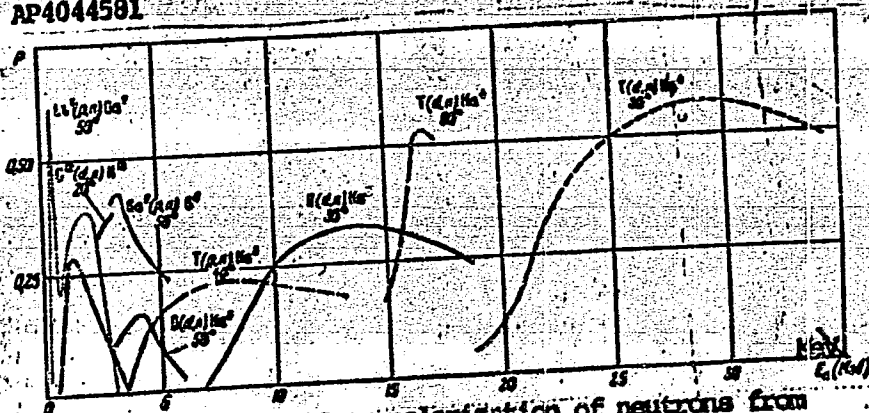


Fig. 2. Summary diagram of maximum polarization of neutrons from various investigated sources.

Card 5/5

L 2738-66 EWT(m)/T/EWA(m)-2
ACCESSION NR: AP5024334

UR/0367/65/002/002/0239/0242

AUTHOR: Arifkhanov, U. R.; Vlasov, N. A.; Davydov, V. V.; Samoylov, L. N.

TITLE: Polarization in $n\alpha$ -scattering at neutron energies of 25, 28 and 34 Mev

SOURCE: Yadernaya fizika, v. 2, no. 2, 1965, 239-242

TOPIC TAGS: neutron scattering, nuclear scattering, alpha particle, proton scattering, neutron polarization, proton polarization

ABSTRACT: The asymmetry of $n\alpha$ -scattering for 45 to 150° is measured for the case of neutrons with energies of 25 ± 1.25 , 27.8 ± 0.9 and 34 ± 0.75 Mev. The neutrons were produced in the T (d, n) He⁴ reaction at an angle of 30° with deuteron energies of 9.1 ± 1.3 , 12.0 ± 1.0 and 19.0 ± 0.8 Mev. The results are compared with the angular relationship of polarization in $p\alpha$ -scattering, interpolated to the same proton energies from the available data for other energies (21.9, 28.8 and 40 Mev). Satisfactory agreement is found between the angular relationships of asymmetry in $n\alpha$ - and $p\alpha$ -scattering, and both relationships show identical divergence from the predictions of phase analysis extrapolated from the energy region below 20 Mev. The polarization in $n\alpha$ -scattering is roughly estimated on the basis of agreement

Card 1/2

L 2738-66

ACCESSION NR: AP5024334

with the polarization in $\rho\alpha$ -scattering. These polarization values must be verified by direct measurement. Orig. art. has: 2 figures, 1 table.

ASSOCIATION: none

SUBMITTED: 23Mar65

ENCL: 00

SUB CODE: NP

NO REF SOV: 004

OTHER: 010

mlr
Card 2/2

L 1842-66 EWT(m)/EPF(c)/EWP(t)/EWP(b)/EWA(h) — IJP(c) JD
ACCESSION NR: AT5022291 UR/3136/65/000/834/0001/0011

AUTHOR: Arifkhanov, U. R.; Vlasov, N. A.; Davydov, V. V.; Samoylov, I. N.

TITLE: Polarization in n-alpha at E sub n=25, 28, and 34 MEV

SOURCE: Moscow. Institut atomnoy energii, Doklady, IAE-834, 1965. Polarizatsiya v n-alpha rasseyanii pri E_n=25, 28 i 34 Mev, 1-11

TOPIC TAGS: neutron polarization, neutron scattering, helium, proton, nuclear reaction

ABSTRACT: Polarization neutrons with energies of 25, 28, and 34 MEV were obtained in the reaction $T(d,n)He^4$ at an angle of 30°. Measurements of the asymmetry of scattering of these neutrons by helium were made at various angles ranging from 45 to 150°. The results obtained are compared with the angular dependence of the polarization in p- α scattering, interpolated to the same proton energies on the basis of data for other energies (22, 29, and 40 MEV). A satisfactory agreement is found between the angular dependence of the asymmetry of n- α and p- α scattering. On the basis of the agreement with polarization in p- α scattering, a preliminary evaluation of polarization in n- α scattering is given. Orig. art. has: 2 figures and 1 table.

Card 1/2

L 1842-66

ACCESSION NR: AT5022291

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: NP

NO REF SOV: 003

OTHER: 010

dy
Card 2/2

SAMOYLOV, M. (Moskva)

Decreasing the phon of alternating current in low frequency
amplifiers. Radio no.6:54 Je '55. (MIRA 8:8)
(Amplifiers, Electron tube)

SAMOYLOV, M. (Mariinsk, Kemerovskaya oblast').

Suction of water from shallow reservoirs. Pozh. delo 4 no. 6:16 Je
'58. (MIRA 11:5)

(Fire extinction--Water supply)

SAMOYLOV, M.

Efficiency promoter. Mast.ugl. 8 no.2:21 F '59.
(MIRA 13:4)

(Mine drainage)

L 00554-66

ACCESSION NR: AP5019266

UR/0356/65/000/007/0050/0053
631.364.7:636.085.52

AUTHORS: Samoylov, M. (Candidate of technical sciences); Omel'chenko, A. 8
B

TITLE: Universal chopper-loader

SOURCE: Tekhnika v sel'skom khozyaystve, no. 7, 1965, 50-53

TOPIC TAGS: agricultural machinery, universal chopper loader / PSN 1 chopper loader

ABSTRACT: A universal chopper-loader PSN-1 has been developed by VISKhOMom, and since last year has been built by the Belotserkovsk factory "Avtotraktorodetal'". It is mounted on tractor MTZ-5LS via a welded frame and powered by the tractor drive. The working parts consist of two drums having 6 radial cutting blades at each end, a screw conveyor, and a blower consisting of a conical 6-bladed disk connected to the speed reducer through a clutch. The drums are mounted on a boom so that they can be lowered into the silo. On small farms the loader may be removed from the tractor in 5 minutes (one man) and replaced in 6-8 minutes so that the tractor can be used elsewhere. Capacity of the PSN-1 is 7.4 tons/hour, width of bite 1250 mm, drum diameter 800 mm, drum peripheral speed 5.98 m/sec; diameter

Card 1/2

L 00554-66

ACCESSION NR: AP5019266

of blower 800 mm, peripheral speed 48.7 m/sec; worm feed diameter 260 mm, 270 rpm; range of blower up to 5 m; weight 1225 kg. During silo unloading from 3-, 2-, 1-, 0.5-, and 0 m depth, the material flow to the blower is 2.7, 1.5, 5.3, 6.7, and 8.2 kg/sec respectively. A maximum of 44 hp is required for operation of the loader. The quality of the silo is improved since the particles are reduced in size from 74.5 mm average for hand-loaded to 42.7 mm for machine loaded silos. Estimated cost of loading per ton is 22.5 kopeks as compared with ~~40~~ 40 kopeks with old methods (RS-200, RSS-6). A modified version with smaller drums and larger screw feed can be used for chopping and loading straw. Orig. art. has: 1 figure and 3 tables.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: IE

NO REF SOV: 000

OTHER: 000

Card 2/2

SAMOYLOV, M.A.

Technical and economic indicators of mechanized planting of sugar
beets. Mekh. sil'. hosp. [9] no.5:16-17 My '58. (MIRA 11:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sakharney svekly.
(Ukraine--Sugar beets) (Planters (Agricultural machinery))

KUTSERDA, S.T., starshiy mekhanik, geroy Sotsialisticheskogo Truda, SAMOYLOV,
M.A., starshiy nauchnyy rabotnik

Mechanized handling of mother beets. Mekh. sel'. hosp. 9 no.9:11-12
S '58. (MIRA 11:10)

1. Sakharo-sveklovedcheskiy sovkhos Ul'yanovskogo sakharokombinata
Kirovogradskoy oblasti (for Kutserda). 2. Vsesoyuznyy nauchno-
issledovatel'skiy institut sakharney svely (for Samoylov).
(Sugar beets) (Agricultural machinery)

SAMOYLOV, M.A.

Problems of designing a machine for planting sugar-beet seed
plants. Trakt. i sel'khoz mash. no. 4:32-35 Ap '59.

(MIRA 12:5)

(Sugar beets) (Planters(Agricultural machinery))